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SOME COMMENTS ABOUT COMMON STORAGES FOR APPLES

A radio talk by Mr. P. P. Gould, senior pomologist, Bureau of Plant Industry, delivered through Station WRC and 31 other stations associated with the National Broadcasting Company, August 27, 1929, 2 p.m. Eastern Standard Time.

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The term "common storage," or "farm storage" as applied to apple handling refers to storage without the use of artificial cooling, in contrast to "cold storage" which implies mechanical refrigeration. I am not to tell you about the details of "common storage." That I hope will be done at an early date by a specialist in this field. But I would call your attention to its possibilities. There may be those who would provide themselves with such facilities for handling this season's crop. To those I would say - write to the United States Department of Agriculture or to your radio station and ask for a mimeographed circular by Dr. J. R. Magness entitled "Air-Cooled Apple Storage Houses"; also for Department Bulletin No. 1406 entitled: "The Ripening, Storage and Handling of Apples."

Prolonging the durability of fruit in "air-cooled" or "common storage," as in "cold storage," is effected as a result of the low temperature retarding the "life processes" whereby a fruit develops, comes to full maturity, then to over-ripeness and finally to the stage of physiological decay as a result, literally, of old age. The temperature inside a common or air-cooled storage is dependent upon the temperature of the air outside. It follows therefore that this type of storage has its geographical limitations.

The ideal storage temperature for apples is from 30 to 32°. Dr. Magness found that softening of the fruit in general proceeds rapidly as the temperature rises; that at 40° it softens fully twice as fast as at 32°; and that at 50° it is almost double the rate at 40°. The importance of cooling the fruit as ^{as possible} quickly after picking becomes evident, and air-cooled or common storage is therefore not practicable in those regions where the temperature is not low enough at, or very soon after harvest, to effect the cooling of the fruit. Fortunately common storage is practicable for the long-keeping, late-picked varieties in most of the commercial apple districts of the country. Taking November as the first full month in which apples would be in common storage, Dr. Magness found that the mean temperature for that month averages from 44 to 46° in a belt that extends about as far south as the 37th parallel of latitude. That parallel passes through the southern parts of Virginia, Kentucky, and Missouri. This temperature belt, however, goes south to northeast Georgia on account of the high elevations in the Appalachian region, and most of the apple districts in New Mexico, the other Rocky Mountain States and the Northwest are within common storage temperature limits.

In his mimeographed circular on common storage houses cited above, the author briefly describes three types: (1) Basement - with storage space below the level of the ground; (2) hillside - constructed on sloping ground with one side of the building and perhaps one end below the surface level; (3) and the above ground type - with the entire building above the surface level. Construction may be of concrete, tile, brick, or frame with proper insulation, depending on the type of house and the availability and local cost of material.

The one outstanding feature of great importance which is easy to be underestimated is provision for abundant ventilation, for on that more than on any other one feature of construction depends the effectiveness of the storage. Of course cold air settles to the lower levels and warmer air rises. To take advantage of the cold nights after the apples are placed in the storage building, as compared with the warmer days, the ventilators must be opened at night, or at other times when the outside temperature is lower than that in the storage room, and closed as soon as the outside temperature begins to rise. Not only must ample provision be made in the construction for the intake of cold air, but also for the escape of the warmer air that is in the storage room.

Perhaps there are apple growers who have an unused building at their disposal which could be converted into a storage house with but little expense; or there may be those who could build a storage house between now and the middle of October, and thus be able to handle their crop to better advantage this year than ever before. The publications which I have mentioned, free for the asking, would help in such construction. I name them again: A mimeographed circular entitled: "Air-Cooled Apple Storage Houses" and Department of Agriculture bulletin 1406 "The Ripening, Storage and Handling of Apples."

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